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ABSTRACT

This paper provides support for the notion that having teachers make predictions about achievement gains has positive educational benefits. A comparison of the mean gain scores over a 6-year period for elementary school children in a remedial Title I program in western Massachusetts indicated greater gains later in the program when the teacher made predictions than when he did not. The results suggest that having teachers make predictions requires the teacher to assess the strengths and weaknesses of each child and then decide on appropriate instructional strategies. This in turn is translated into educational benefits for the child. (Author/JA)

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Student Achievement Gains as a Function of Teacher Predictions

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The purpose of this paper is to provide support for the hypothesis that there are educational benefits associated with having teachers make specific educational gain predictions for each of the pupils he or she is responsible for. The rationale for the hypothesis is fairly simple. When teachers are required to make a prediction about the educational level a particular child is likely to reach at some future time, they must do several things. First, there must be an assessment of the current strengths and weaknesses of the child. Second, the teacher must take into consideration such factors as, the speed at which the child learns and how he responds to various instructional techniques. The argument is that these activities lead to a greater awareness on the teacher's part of the individual capabilities of each of his or her students. This awareness in turn is translated into educational benefits for the student. A second possibility for positive benefits from making predictions is in the area of teacher motivation. When teachers make predictions about future performance of students, they are, in a sense, risking their professional reputation. Having made the prediction, they are likely to feel some pressure toward making the prediction come true. Again, this should result in educational benefits for the students.

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Method

Subjects. The data to be reported were gathered in the context of a federally supported remedial reading project conducted in the elementary level school system in Western Kansas. The program began in the school year 1967-68, and has continued to the present time. The students in the project were from grades 1-6 (five each year) and from four different target schools within the system. The numbers participating for each year beginning in 67-68 and ending in 72-73 were, respectively 112, 102, 110, 116, 99, 117. Those students were divided approximately evenly between students who were single year participants in the program and students who were multiple year participants.

The students were selected for participation in the project on the basis of perceived need as judged by the school staff. The two factors most important in making these judgements were previous test scores and teacher recommendations.

Procedure and measures. Essentially, the project involved removing each of the targeted children from the regular classroom during reading periods and placing them in the care of a remedial reading specialist. The remedial groups consisted of a small number of students (about 5) taught by one of five specialists who rotated between the four schools. Instruction was mostly individualized. During each of the years the program has been in existence the students have taken both pre- (given in the fall) and post- (given in the spring) [illegible] of the Stanford Reading Achievement Test.

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[illegible] the 1970-71 program had been [illegible] with each of the remedial specialists [illegible] to the score each of the students [illegible] would obtain on the post-test given at the end of the year. This involved making specific grade-equivalent predictions for [illegible] sub-scales (e.g., word meaning, paragraph meaning, etc.) on the Stanford. The teachers were also asked to make similar predictions during 1971-72, and again in 1972-73.

Results

The mean achievement gains recorded by all the remedial reading students for the three years (67-68, 68-69, 69-70) prior to having the teachers make predictions were, respectively, .84, .76, and .93. These values are grade equivlent scores and represent gains summed across grade level and achievement test subscales. The comparable scores for the three years in which the teachers did make the predictions (70-71, 71-72, 72-73) were, respectively, 1.04 and 1.3, and 1.3. The average gain for the three year period prior to the prediction treatment was .84, compared to the three year average of 1.21 years after the teachers started making the predictions.

Formal analyses of these data were complicated for several reasons. First, as was previously mentioned, the student sample consisted of both single and multiple year participants. Second, we did not have complete data on all subjects: i.e., some pre-test scores were missing. This was particularly true for the early years of the program. With these problems in mind, we conducted

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separate analyses of variance. The first was a one-way ANOVA with two levels. The subjects in this analysis were every first year student from whom there was complete data. The two levels were formed by combining subjects from the first three years (level 1) and subjects from the second three years (level 2). The dependent variable was the gain score for each of the SAT subtests. The results of this analysis indicated that subjects from the second three year program period had significantly higher gain scores than did subjects from the first three year program period, $F(1,478) = 18.96$, $p < .01$.

The second analysis was identical except that the subjects were students who had been in the program two years or longer (a very small percentage were in the program longer than two years). Again, the conclusion was that subjects enrolled after the teachers began to make predictions significantly outperformed those who were enrolled before making the predictions began, $F(1,718) = 33.45$, $p < .01$.

Discussion

The data presented here does not provide conclusive evidence that teacher predictions result in educational gains over what otherwise might be expected. One alternative explanation, for example, is that the remedial teachers simply become much more proficient teachers. This explanation becomes somewhat less plausible, however, in light of the turnover in remedial specialists during the five years the program has been in existence. During this period there have been approximately 10 different remedial teachers filling the five teaching positions each year, with only [illegible] being with the program more than 4 years.

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Another alternative explanation is that the children in the last few years were brighter and therefore greater gains would be expected. This could occur, for example, if the school staff altered their criteria for admitting students to the program. An analysis of the I.Q. scores for the same groups on which the previous analyses were reported offer mixed evidence on this possibility. The analysis for the single year group indicated no difference between pre and post treatment groups, $F(1,112)$ [illegible]. However, the multiple year groups did differ in that the post-treatment group ($\bar{X}$ IQ 96.9) had a higher average IQ than the pre-treatment group ($\bar{X}$ IQ 91.8), $F(1,213) = 11.6, p < .01$. We would point out two things about the IQ explanation. First, the fact that the multiple year students differed in IQ, and the single year students did not, whereas both groups differed in achievement test scores, suggests that I.Q. differences are not sufficient explanations for the achievement differences. Second, the magnitude of the achievement effects was considerably larger than those for I.Q.

The reaction of the teachers to our treatment was interesting. Despite some initial objections about making the predictions, their general impressions were that making the predictions forced them to think about the particular skills possessed by each child. This in turn led to focusing on those skills that were particularly weak.

In summary, we believe that having teachers make predictions about achievement gains has highly positive educational benefits. Our data, while not conclusive, is certainly suggestive, and worthy of further research.